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## Worldwide Report

**EPIDEMIOLOGY** 

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# WORLDWIDE REPORT EPIDEMIOLOGY

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#### BRIEFS

BELIZE-MEXICO COOPERATION--Belize and Mexico signed a statement of intent Wednesday for cooperation in the field of health. The signing ceremony took place at the Belize School of Nursing in Belize City. Signing for Belize was the Minister of Health, Housing and Cooperatives, Mr Assad Shoman, and for Mexico, the Secretary of Health and Social Selfare, Dr Guillermo Soberon Acevedo. Prime Minister George Price, Minister of Home and Foreign Affairs Mr Vernon Courtenay, Deputy Minister of Health, Mrs Jan Usher, Permanent Secretary, Health, Mr David Gibson, and Chief Medical Officer, Dr Errol Vanzio, were present for the ceremony. A report on the health situation in the Belize-Mexico border area was delivered by Dr Vanzio. And a similar evaluation was presented by Dr Alpuche. The statistics show that the more prevalent diseases in the border areas are malaria, dengue, and respiratory infections. Under the agreement, Belize and Mexico will undertake joint action to implement a wide range of health programmes. [Excerpts] [FL281848 Belize City BELIZE SUNDAY TIMES in English 26 Aug 84 p 1]

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#### ARMY'S MEDICAL RESEARCH DESCRIBED

Prague RUDE PRAVO in Czech 18 Jul 84 p 3

[Article by OT: "From Research by the Czechoslovak Army"]

[Text] The Military Institute of Hygiene, Epidemiology and Microbiology in Prague supports 10 medical specialties from the field of preventive medicine. During the more than 25 years of its existence, dozens of research theses—treating subjects such as early diagnostics, epidemiology, and prevention of infectious diseases as well as topics such as monitoring the quality of food for the armed forces, and others—were defended at the institute.

A major effort on the part of researchers is focused on the specific needs of the medical services provided for the Czechoslovak Army. Long-term studies, based on original methods and on in-the-field experiments, are devoted to respiratory infections. In the department of bacteriology and virology, problems of quick diagnostics are being tackled; considerable attention is given to antibiotics and to their preventive therapeutic application. The institute is also involved in working out methods of clinical immunology.

A long-term research project on the effective and practical application of diagnostic methods to viral hepatitis has produced substantial results. In order to promote fast virological diagnosis, a bank of antiviral sera was established. To further the goals of the bank, dozens of serum samples taken from individual patients have been made available. They are available in sufficient quantities and the impact of the bank reaches beyond the borders of CSSR.

Considerable progress has been made in diagnostic work that is done for the Central Military Hospital. More than 200,000 examinations are conducted annually and, on the average, 25 new types of test procedures are introduced. The doctors from the institute act as advisers to many sectors of our health care system, and all citizens of our republic benefit from their work. So, for instance, the institute's physicians took a decisive part in liquidating cholera in eastern Slovakia in 1971 and, in 1979, they assisted the effort to check a statewide epidemic of infectious hepatitis. Since its inception, the institute has also cooperated with specialists from the Warsaw Pact countries.

#### VACCINATION CAMPAIGN IN MANSOA

Bissau NO PINTCHA in Portuguese 25 Aug 84 p 2

[Text] About 500 children, aged 1 to 15 years, of the Ga-Mamudo, Djugudul and Uag sections, have been vaccinated against the diseases of "municepedemiologica (Endeamiasses)" [translation unknown], in the course of a survey about the incidence of tuberculosis in the Mansoa sector.

The team, made up of Dr. Francisco Gancalves Grillo, cooperant and chief of the delegation, and Guinean specialists, was received upon its arrival in Mansoa last Monday by Comrades Malam Darame and Antonio Amaro Gomes, respectively president of party and state committee of the sector and secretary for party organization. The survey work then began.

Meanwhile, there was a serious fire in the home of producer Demba Quelula, in Cuntima, resulting in much material loss, notably foodstuffs, harvesting material, animals, worth 40,000 pesos.

The cause of the fire is as yet unknown. However, the Party and State Committee of the Oio Region took urgent measures to assist the producer who suffered the loss, and who lives in Cabelenhadum in the area of Cuntima. For the present, he has been given some farming supplies and essential foodstuffs.

8834

#### CAMPAIGN TO BE LAUNCHED AGAINST TUBERCULOSIS, LEPROSY

Beira DIARIO DE MOCAMBIQUE in Portuguese 2 Aug 84 p 16

[Text] Maputo. Beginning this month, the Jose Macamo General Hospital in Maputo will launch a campaign to be known as "Operation Door-to-Door," for the purpose of identifying individuals who, despite the fact that they are likely candidates for certain diseases, do not make frequent visits to the hospital. This was revealed to our reporters by Simiao Simao Cuco, official in charge of preventive medicine at that health center.

The campaign will be conducted in Inhagoia ("A" and "B"), the most densely populated district when compared with the others located in the operational area of Jose Macamo Hospital, and will include most particularly persons suffering from tuberculosis and leprosy and children whose mothers do not comply with the vaccination schedule, including those who do not report for the weight check.

Attention will likewise be directed toward pregnant women who do not report for prenatal consultations. At the same time, there will be an inspection of the conditions prevailing in public toilets and the people will be given instructions regarding the sanitary precautions to be taken in their use.

The campaign will be directed by approximately 30 workers in different sectors linked to the department of Public Health at that hospital. They will be divided into teams that will be transferred to the individual city blocks of the aforementioned district.

According to our source of information, "Operation Door-to-Door" may also be extended to the districts of Jardim, Bagamoyo, "25 June," "Unit 7," Jorge Dimitrov, Magoanine, Zimpeto, Salene, Malhazine and "Luis Cabral." "In these zones, the campaign will be directed simply by members of the respective public agencies, who will be able to count on our technical support," our source explained.

With this in view, the preventive medicine personnel of the Jose Macamo General Hospital have already initiated a broad program of joint instruction for the individuals to whom the above groups of people are assigned, to equip them with the expertise necessary to the proper execution of the tasks involved in the aforementioned campaign.

Advice for Adults, Readmission Passes for Children

As our conservation got under way, Simiao Simao Cuco explained that "operation Door-to-Door" will consists basically of the distribution of readmission passes in the particular case of children whose mothers do not comply with the vaccination schedule or who do not report for the weight check, so that they may present themselves at the hospital clinic.

"As for persons suffering from tuberculosis or leprosy and pregnant women, we feel that a simple word of advice is enough to make them understand the need to visit the clinic," Cuco said.

The length of the campaign will depend on the flexibility of the teams that are to be named and on the support provided by the political structures of the districts.

It should be emphasized that the initiative involved in the organization of the campaign is within the framework of the supplementary plans of the Jose Macamo General Hospital in celebrating the 20th anniversary of the launching of the armed struggle for national liberation.

8089

#### ANTI-TUBERCULOSIS CAMPAIGN SUCCESSFUL IN MAPUTO

Maputo NOTICIAS in Portuguese 13 Aug 84 p 2

[Text] In comparison with the rest of the country, Maputo Province finds itself in a relatively good position in terms of the announcement of new cases of tuberculosis. This finding was published in the latest issue of the BOLETIM DA DIRECCAO PROVINCIAL DE SAUDE of Maputo. The study cited some conclusions of the Second Seminar on tuberculosis which took place in March of this year and was intended to implement the measures in the war against TB carried out by the sanitation units of this region of the country.

According to the document, the situation observed in Maputo Province in terms of control and apparent stabilization of pulmonary tuberculosis cases results from the use of strategies defined by Seminar I held in 1981.

Regarding the organizational aspects of the campaign, the Bulletin points out that in this Province working committees were established including technicians from the Maputo Provincial Bureau of Health. The committees were tasked with the study of tuberculosis epidemiology, diagnosis and treatment, tuberculosis in children, organization of an antuberculosis campaign and the supervision procedure of the strategy among other requirements.

According to the Bulletin of the Provincial Bureau of Health the results of the strategy, adopted in 1981, to reduce and control the cases of pulmonary tuberculosis, began to produce results beginning in 1982 with the organization of specific district services for the program.

According to data made public in that document, seminars were held in all the Provincial districts to obtain statistical information. This made possible the organization of the provincial card-index recording tuber-culosis patients and equipment of hospital units with microlaboratories among other achievements.

Thanks to the work undertaken and the joint effort of the health workers on all levels it was possible, according to the Bulletin, for Maputo Province to improve its position in so far as disclosure of new cases of tuberculosis and deaths are concerned.

According to the Health Bulletin the work undertaken in various Provincial districts made it possible to stabilize the ability for passive detection of new cases of pulmonary tuberculosis.

On the one hand, this work made possible the increase in the cure rate although the mortality rate remains the same.

On the other hand and according to the Health Bulletin the level of those discontinuing treatment represents 20 percent of present patients and 60 percent of new cases. During the year 1982 and 83 those reinitiating treatment were from 10 to 15 percent of the 38 to 39 percent respectively.

The Health Bulletin also disclosed that nearly two thirds of the present sick are under treatment which shows the concern of both patients are workers in complying fully with measures recommended by the first seminar on the subject.

The Provincial Bureau of Health said that the seasonal occurrence by sex, age, and other professional groups did not reveal, in general terms, new aspects to consider. However, according to the document, the low level of diagnosis in the 0-14 year old group and the deficient record of professional activities should be noted.

8870

#### NORWEGIAN DEVELOPMENT AGENCY FINANCES ANTI-TB PROGRAMS

Maputo NOTICIAS in Portuguese 31 Aug 84 p 10

[Text] The Norwegian Agency for International Development (NORAD) will grant to Mozambique financing totaling 14,500,000 kroner (about 72,500,000 meticals) to be used in carrying out a program to combat tuberculosis. In a first phase the project will cover eight districts, four in the province of Maputo and four in Nampula. A study is to be made in these districts about trends of the disease and measures to be taken, it was reported to us by the representative of that institution in our country, Arthur K. Syanes. From a source in the National Health Directorate we learned that communications were sent to the provincial health directorates of the two provinces recommending preparation of conditions aimed at implementing the program.

Although signing of the respective agreement between Mozambique and NORAD is not expected until the end of this year, preparations for implementing the program are already at an advanced stage.

In fact, meetings are being held to exchange ideas between the RPM [People's Republic of Mozambique] Health Ministry and the NORAD representatives, at the same time that institution chose and introduced to our country a medical student who will work in the program.

Moreover, the Norwegian agency initiated contacts with the International Organization for Combating Tuberculosis [OICT], asking that this organization grant all support needed to implement the activity.

According to our interviewee, the contact with the OICT arose from the fact that this institution has internationally acknowledged experience in combating tuberculosis.

#### Evolution of Disease

The first action to be entered upon in executing this work will consist of a survey of the evolution of this disease in the eight beneficiary districts. On the basis of conditions that are found, it will become possible to define the measures needed to conduct activities to combat the disease.

In view of the fact that this type of activity is being done for the first time in in our country, the project is defined as a pilot project and will require,

according to the NORAD representative, training of medical personnel that work in this area. Preparation of staff now working in the sector, as well as those that can become a part of it, will be done through transmitting experiences by the physicians who will be chosen by the OICT and by NORAD.

"In the same program, travels by medical personnel to some countries where projects of this type are underway are expected. Visits to these countries will permit Mozambican specialists to exchange ideas about combating tuberculosis," our source asserted, adding that expenses of these trips will be supported by the financing granted by NORAD.

8834

#### BEIRA CAMPAIGN TO TREAT, PREVENT MEASLES

Beira DIARIO DE MOCAMBIQUE in Portuguese 11 Aug 84 p 4

[Text] At least 67 children living in the Inhamizua neighborhood have been vaccinated against measles, an epidemic that has been afflicting the city of Beira for more than 2 months.

This disease brings about high fever and sore eyes, which become red. Then a skin eruption occurs. This disease is being combated by a health brigade constituted for the purpose.

Besides administering vaccinations, when the health specialists go into one of the neighborhoods considered most affected they also inform the mothers of small children about ways to combat the disease as soon as it can be detected.

According to a source close to the Health Ministry, in the 14th week of this epidemic there was a tendency to be lower, whereas in the 7th week the outbreak hit the highest point on the chart.

In reference to the past month of July, our reporter was informed that there were [missing word(s)] cases of this disease, which can cause death if the mother does not proceed properly in following the physician's recommendations.

It is hoped, however, that with the effort that is being made by the vaccination brigades of the sector the epidemic will disappear or reduce its levels.

#### How to Avoid Measles

In order to avoid an epidemic of measles, one must proceed in the following manner: vaccinate all the children in each neighborhood. The success of this work depends upon the active participation of the people, as well as that of the administrative and political structures where the situation breaks out.

For this reason, those affected must assure their cooperation. In each family, the mothers must be sure that all their children have received the measles vaccine.

The vaccine protects the child against measles. This is why it must be taken to the nearest health station to be vaccinated, since this is the best way to avoid the disease.

In the Inhamizua neighborhood the occasion was taken for those who came for the measles vaccine and others to be vaccinated against other diseases, such as tuberculosis, tetanus and whooping cough.

Against tuberculosis, 29 BCG needles were used, for an equal number of children, and 12 of DTP and polio for triple vaccine against diphtheria, tetanus and whooping cough.

It is pointed out that the action, which is carried out on Sundays, will next be extended to the Munhava neighborhood, and later to Matacuane, the two areas considered hardest hit by the outbreak.

8834

#### CHILDREN VACCINATED AGAINST MEASLES

Beira DIARIO DE MOCAMBIQUE in Portuguese 16 Aug 84 p 2

[Text] Over 100 children have been vaccinated against measles in the Inhamizua neighborhood of Beira during the campaign to combat the outbreak that is in progress in that zone, which is considered the most affected in relation to the other two, which are Munhava and Matacuane.

The action in question is being carried out very enthusiastically by health professionals in order to eliminate the epidemic as soon as possible. This work consists of mobilization and health education of the mothers, to urge them to bring their children to the nearest health station to be vaccinated.

According to a source close to the organization responsible for this health activity, the campaign will take place in Inhamizua again next Sunday, due to the lack of active participation by the local population last week. For this reason it was not possible to cover other neighborhoods, as had been intended.

Referring to the situation of this disease that afflicts mainly children from birth to 3 years of age, the source pointed out that the peak of the graph reached 266 percent, registered during the 8th week of the epidemic. At this moment, more specifically in the 15th week, it dropped sharply to 33 percent. Nevertheless, there is a tendency for this outbreak to decline even more in future weeks.

In this context, the DIARIO DE MOCAMBIQUE has been informed that the same task was being carried out last Saturday by another health brigade in the Macuti neighborhood, where 22 children may be vaccinated.

In this neighborhood, we were told, these vaccinations were administered on the initiative of the local administrative and political officials, who took the occasion to invite a health team to combat the measles.

Lastly, besides this task, the opportunity is also being taken to vaccinate children against tuberculosis, whooping cough and tetanus.

8834

#### BRIEFS

BEIRA ANTI-MEASLES CAMPAIGN -- The campaign against measles, an outbreak of which was detected a short while ago in the city of Beira and in some districts of Sofala, namely Caia and Chibabava, was taken last Sunday to the Manga zone, more specifically Vila Massano, where 49 children aged 9 to 23 months were vaccinated. This action also intends to give a brief explanation to mothers with the intention of motivating them to take their children to be vaccinated. Although the top of the chart was reached in its 8th week, at 266 percent, the situation is now showing a decline from previous months. A source associated with health authorities in this city told us that with the decline that is now occurring only sporadic cases of this outbreak are being registered. Lack of mobilization of the population on the part of the political and administrative organizations of the neighborhood where the activity is being conducted constitutes one of the problems pointed out by that source. It is noted that in administering these vaccinations, vaccination against tuberculosis, whooping cough and tetanus are also given. In this context, 35 tots were immunized against whooping cough and tetanus, while the children of that neighborhood had already been vaccinated against tuberculosis. [Text] [Beira DIARIO DE MOCAMBIQUE in Portuguese 30 Aug 84 p 2] 8834

#### KARACHI TO HAVE EPIDEMIC DISEASES HOSPITAL SOON

Islamabad THE MUSLIM in English 31 Aug 84 p 6

[Text]

KARACHI, Aug. 30: An epidemic disease hospital would be constructed by Karachi Metropolitan Corporation at the old sewerage farm near Pak Colony.

A provision of Rs. two million has been made. Work on the project

At present, there is no such specialised institution in the city and patients suffering from infecand patients statering from infec-tious or contagious diseases, as' well as those requiring quarantine-such as dog-bite victims, are kept in general hospitals.

The epidemic diseases hospital of the Sind government built before independence, was dismantled in the early seventies and its site was used for the expansion of the

Civil Hospital.

The KMC proposal has come in the wake of increasing public demand as the needs of the growing popultion are mounting with the passage of time.

nas been made. Work on the project is proposed to be started during the current financial year.

Steps are being taken to appoint consultants to prepare a detailed design within three months to ensure that civil works start early next year.

The selection of the sewerage farm land has been made for a host of factors, and in consultation with KMC's own public health experts.

Meanwhile, the medical experts

Meanwhile, the medical experts say that to suit the changing trends it would be more desirable for the KMC to develop a complex with facilities to handle all infactious contagious as well as epidemic diseases, with greater emphasis on the first two as well as ailments which require quarantine and total isolation.

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#### CAUSE OF MYSTERY DISEASE SAID DETECTED

Karachi DAWN in English 3 Sep 84 p 1

[Text]

ISLAMABAD, Sept 2: The cause of the mystery disease which has resulted in the death of at least 14 people, mainly children, over the past two months in Talagang Tehsil has at least been detected.

Entomologists after carrying out indepth investigations reached the conclusion that the disease was the result of tick-bite. Maj-Gen. M.I. Burni, Executive Director National Institute of Health told APP here on Sunday that the entomologists were currently engaged in collecting more ticks from the area to check their finding thoroughly. "It is still difficult to give an exact name to the disease, but it may be called tick virus," he said.

Gen. Burni said the disease was detected by examining the patients' blood and the insects which were found in the affected localities.

Gen. Burni said the tick-bite caused anti-bodies symptoms and it especially attacked the children

who have little resistance or are undernourished.

"We have now resorted to antitick measures to fully control the disease," Gen. Burni said. The measures included complete spray of the area, providing clean drinking water and improving the hygienic conditions.

He urged the residents of the disease-hit villages of Talagang to co-operate with the Health Department in successfully implementing preventive measures. He also advised them to keep their cattle, sheep and other animals clean.

Gen. Burni, who had visited the area three times since outbreak of the disease, said: "The disease is now under well control and there is nothing to worry. No death has been reported to the Health Department during the last 10 days."

He said a comprehensive healthcare programme has been undertaken in 85 villages of the area to rid them of the disease and its possible outbreak in future.—APP.

#### **BRIEFS**

MYSTERY DISEASE SAID SPREADING—ATTOCK, Sept 1: Maj. Gen. M. I. Burni, Executive Director of National Institute of Health on Friday visited areas affected by the mysterious fatal disease in Talagang Tehsil, some 120 kilometers from here for six hours and experts with him collected mosquitoes for examination. According to reports the disease is spreading to more villages. The Deputy Director, Punjab Health Department, sent more doctors and nurses and for the help of the medical staff posted in the Talagang Hospital. The disease has also affected village Thoha Maharm Khan where one doctor with an ambulance has already been sent by the Health Department. [Text] [Karachi DAWN in English 2 Sep 84 p 2]

MYSTERY DISEASE SCARE IN SAHIWAL—SAHIWAL, Sept 5: A mysterious disease has spread in the rural areas of the district after the recent rains. It is stated that rain—water, accumulated in various localities, has helped in breeding of new species of a small insects as well as mosquitoes which have caused the strange disease, hitherto unknown to the public and the medical circles. Their bite results in high fever and headache. The disease has scared the rural population and a large number of people have left their homes and gone to other towns for the time being. [Text] [Karachi DAWN in English 6 Sep 84 p 2]

DISEASE KILLS ONE MORE--ATTOCK, Sept 5: One more boy died of the mystery disease in village Lotery of Talagang tehsil on Tuesday raising the death toll due to this disease to 21 in tehsil Talagang and 5 in Kahuta district, Rawalpindi. The Director, Health Services, Punjab visited Talagang on Tuesday. [Text] [Karachi DAWN in English 6 Sep 84 p 2]

#### EPIDEMIC SITUATION IN HOSPITALS DESCRIBED

Warsaw SLUZBA ZDROWIA in Polish 19 Aug 84 pp 1, 4

[Article by Professor Stefan Krynski, M.D.: "The Epidemiologic Situation in Hospitals"]

[Text] A war has been declared against hospital infections in Poland. The questions, however, are what we know about these infections and how well we are prepared for this action. The concept of "hospital infection" is defined variously. The Official Register of the Ministry of Health and Social Security gives the following definition: "... infection occurring in the hospital or after discharge from it and caused by a documented epidemiologic disease agent originating from another patient or hospital staff or caused by an endogenous microbiologic agent."

Infection, unlike colonization (which is a physiologic process, consisting in mere entry of microorganism and its multiplication inside the host body), is a pathologic process. It can be exogenous when the invasion occurs from the outside, or endogenous when a representative of the host's own flora becomes active and multiplies. Exogenous infections can be sporadic or develop as epidemics or endemics. Epidemics outside of the hospital have a limited duration, due partly to immunization of the population. In the hospitals, on the other hand, with continuing influx of new patients susceptible to the infection, an epidemic lacks the natural tendency for disappearance and often requires a temporary closure of a department or sometimes entire hospital for disinfection. More often, however, we are dealing in a hospital with an endemic source, or the continuing persistence of certain species, or, more strictly, certain types of microorganisms which, depending on their clinical virulence, either cause various diseases or are limited to their common presence in healthy carriers with sporadic outbursts of disease in the more susceptible individuals.

Endogenous infections are totally different. Epidemiologic agents have a secondary role to play here, while the main factor is the resistance forces of the human body and the ecology inside it. Under normal conditions, there is a state of equilibrium between the host and its colonizing flora, as well as between individual species of that flora. A decline of the individual's resistance, as well as the use of immunosuppressive drugs, can disrupt the equilibrium between the organism and its flora and result in a multiplication

of a particular species, or, which is particularly dangerous, a large number of species, causing disease. The immunological weakness permits the individual's own microorganisms to break through the defensive barriers inside the body and penetrate into normally aseptic locations, where they produce foci of infection. Also important is the disruption of reciprocal balances of the individual species caused by antibiotics, especially since some of these drugs have an immunosuppressive action, further violating the relations between the host and its flora.

Examining the infections of hospitalized patients, we must decide whether there are adequate criteria for differentiating between hospital and extrahospital flora and whether the etiological agent always has its source in the hospital. Generally, it is assumed that exogenous infections are produced by a characteristic flora of the hospital environment which is typically characterized by a broad resistance spectrum to chemotherapeutic substances. The matter, however, is not all that simple. In the past few years, the differences in susceptibility to antibiotics among various strains of bacteria began to be erased. This can be illustrated by Staphylococcus aureus, which is a widespread species allowing an easy identification of the strains by bacteriophage typology.

For many years, the predominant types belonging to groups 52, 52A, 80, 81, and 7, 47, 54, 75, 77, 84, and 85 were observed almost exclusively in hospitals and exhibited resistance to most antibiotics (especially the second of the above strains). Now they have either disappeared or occur just sporadically. The multiple-resistance types characteristic for a hospital environment currently include only the group 83A, 84, 85, 88, and 89, which account for about 30 percent of Staphylococci isolated from patients and the air. Outside of the hospital, these strains are found only as an exception. On the other hand, we are observing an expansion of strains from phage group II, which was predominant in the preantibiotic area, as well as a proliferation of types 79/95, 96, and 71-96. These strains, as well as members of group II, have a very narrow range of antibiotic resistivity and are found both in hospitals (where they account for 60 percent of isolated S. aureus strains) and in extrahospital environments (where they are the most frequent etiologic agent in pyotic infections). This complicates the interpretation of the results, due to the impossibility of a detailed identification of the strain. The Pseudomonas aeruginosa baccili, which are currently proliferating, and a Proteus Rettgeri variety, are, in contrast, resistant to a great number of antibiotics in the hospitals, as well as outside. The same is true of Salmonella agona, which now presents the most serious epidemiologic problem in pediatric departments.

It should be clear from the foregoing that answering the question as to the criteria distinguishing between hospital and extrahospital flora, especially in regard to the strains that are the most important etiologic agents in infections of hospitalized patients, is no easy matter. Neither is it always that the patients and hospital personnel are the source of infection. That is a rule in the case when the hospitals are sources of endemic disease, but in epidemics inside a hospital the cause may be newly

admitted patients with clinical signs of the disease, as well as healthy carriers that present a particular epidemiologic threat. This is the most frequent cause of hospital epidemics caused by bacilli of Salmonella and Shigella genera, enteropathogenic, colonic bacilli and viruses. A similar situation occurs sometimes with P. aeruginosa and Candida infections. Epidemics are often caused by strains brought with food. This concerns enteric bacilli of Salmonella and Streptococcus fecalis species. The sanitary conditions in the hospital have no major effect on flare-ups of such epidemics, although their further course is largely determined by them.

Exogenous diseases occurring in hospitalized patients do not often lend themselves to easy epidemiologic interpretation, but the difficulty here is less than with endogenous infections and their classification with the nosocomial category. One should not consider here the large group of post-operative complications caused by trauma to the sites of natural habitat of microorganisms and their penetration into physiologically aseptic parts of the body. A common example are infections occurring after appendectomies. Conclusions are more difficult to draw when endogenous infections present in a patient after a longer stay in the hospital, that is, after a primary colonization with the hospital flora that later becomes active and causes disease.

The problem of nosocomial infections is therefore not as simple as one would think reading the Official Register. One can only get through that maze by a well-organized cooperation of competent microbiologists, epidemiologists and physicians aware of the importance of bacteriology.

The next question is: what do we know about nosocomial infections in Poland? The answer is very short: not much; almost nothing. In the last decade, not a single research work has been published in our journals that contains a properly documented study of nosocomial infections analyzing them in epidemiological terms. Instead, we have seen a series of articles and statements both by physicians and those working in the field of microbiology. If such statements are based on individual experiences, even limited, they must have an informative value. However, it seems that the writers mostly have never had direct contact with an average Polish hospital and have never been forced to make decisions in complicated epidemiological situations. Their authoritative opinions are often based on publications from other countries where health services operate under totally different conditions and face different problems. One upshot of this is the proliferation of concepts that are far from reality and the resulting fallacious organizational steps.

Relatively more numerous are publications on sanitary conditions in hospitals and the types of flora occurring there, which allow evaluating the degree of epidemic hazard. These studies have been done mainly in clinics, much less frequently in large hospitals, and only in exceptional cases in medium-sized hospitals of health centers. The studies were mostly focused on surgical and obstetric departments, less often pediatric departments, and very rarely departments of internal medicine. Many of these studies fail to meet the standard requirements of epidemiological research, especially because they fail to provide exact identification of microbial strains in terms of serologic characteristics, bacteriophage and bacteriocin tests.

For many years, we have studied the clinical bacteriology and epidemiology of nosocomial diseases, with an emphasis on neonate wards. As a result, we developed principles of bacteriologic assessment. Under the program MR17, we conducted comprehensive studies at eight hospitals of health centers and two provincial hospitals; conducting simultaneous bacteriologic diagnostic studies in these institutions or supervising such activities, we were in a position to obtain a representative picture of the prevailing situation in the average hospital.

A common view is that nosocomial infections in Poland primarily occur in surgical departments. However, this view is not based on any specific data, because available information is scarce. The reason is simple: surgeons either do not use bacteriologic research or do that extremely rarely. For the most part, their cooperation is limited to dramatic cases, or outbursts of epidemics that may cause the department to be closed. The few exceptions only confirm the rule. The fragmentary materials submitted to bacteriologic labs may provide useful data for a particular patient, but epidemiologically they are of little consequence. Evaluating whether we are dealing in a surgical department with endogenous or exogenous infection and whether the latter is of a sporadic, epidemic or endemic nature is only possible if we know the kind of flora that is prevalent in the given department and when patient specimens are investigated in a systematic manner.

Evaluating the sanitary conditions of the surgical area, we started with tests of airborne flora in quantitative and qualitative terms and also investigated water supply and sewage fixtures in adjacent facilities. The number of bacteria per square meter during one hour of surgical intervention varied from 500 to 9,000. Why was the abundance of microorganisms so high? The reasons were the location of the operating room and the absence of ventilation and failure to maintain proper sanitary discipline (protective clothing and footwear). Qualitatively, we concentrated on the presence of disease-causing bacteria.

Our cultures did not grow any pus streoptococci, but data from Polish publications indicate that they may occur in the flora of operating rooms. We have, however, found sporadic S. aureus. Its presence was associated with a failure to maintain proper aseptic conditions (protective clothing and footwear), and several times we witnessed the introduction of these bacteria on the wheels of the gurney used to bring the patient into the operating room. Placing a mat saturated with disinfectant in the way of the gurney was sufficient to eliminate this route of infection.

Most dangerous situations may occur through a failure to isolate properly the aseptic patients from cases with pyogenic infection. The occurrence of P. aeruginosa found usually in auxiliary rooms of the surgical wing was associated with water supply and sewage installations mainly sink drains from which they were propagated through the air in an aerosol form. Using vinegar followed by rinsing with boiling water is a simple, inexpensive and effective method of eliminating these bacteria.

Investigating the air in hospital wards, we isolated S. aureus in 13 percent of the rooms. These bacteria were most frequent in hallways, where they were registered in 50 percent of the cases. The causes were mostly inadequate procedures with linen supplies and other pus-infected materials, rather than the movement of patients.

The number of patients who were S. aureus carriers was not great and on average not higher than 22 percent, which was not much different from the average for a healthy population. Our data on complications are fragmentary for the reasons given above. They seem to suggest that endogenous, often multiple, infections were the most widespread type. Real nosocomial infections, frequently with a dramatic course that develop into threatening epidemics which are hard to suppress or into persistent endemics, are observed mainly in departments closely associated with the surgical department—namely, the intensive care unit. Airborne flora here is usually not numerous but consists exclusively of dangerous microorganisms. Here we found not only S. aureus, which are the predominant airborne factor, or P. aeruginosa, abundant in sink drains, from which it penetrates into the environment, but also pus streptococci.

We have observed a dangerous epidemic that had tragic consequences and was caused by an extremely virulent Candida strain abundant in the air. This was a consequence of a faulty planning, where wards with accident victims, likely to introduce into the hospital environment flora from the outside, including bacilli, were located close to particularly susceptible patients from various departments, who in turn introduced the flora of high clinical virulence, or patients after serious surgical interventions which required special protection from infection.

Chemotherapy proves of little effect here, causing solely a replacement of the bacterial flora in the patient and a succession of different infections. The only way to resolve this burning issue is to properly organize these departments and put them under specific microbiologic surveillance.

Most publicity is given to infection in maternity wards. The newborn's body, usually aseptic, is rapidly colonized by flora from the environment. The most favorable scenario is if the flora originates from the mother. In hospital conditions, however, it is different. The flora comes from other, earlier born neonates kept in the same room. This emphasizes the value of such systems as shared accommodations, group isolation or the best type-isolation in a common room. The air, the hands of the nurses and aerosol particles during bathing (the bacteria in sink drains) and toilet facilities are the main routes of propagation of hospital colonizing flora and in the worst cases the sources of neonate infection.

Of the bacteria that can be infective agents, S. aureus is the most frequent variety. On average, 60 percent of newborns are colonized by this micro-organism, and in some hospitals up to 100 percent. Staphylococci are also abundant in the air of neonate wards. In our studies, an average of 50 percent of such wards revealed their presence, and in 10 percent the number of

infective particles precipitating per square meter per hour was greater than 10,000. Fortunately, the varieties observed in maternity wards were usually of a low clinical virulence, so that incidence of disease was actually low compared to the prevalence of microorganisms. During some periods, however, we had frequent and serious epidemics.

In the late 1950's and the turn of the early 1960's, staphylococcal infections, and in particular pneumonia, sometimes in severe forms, caused by staphylococci of the phage types of the group 52, 52A, 80 and 81 were fairly infrequent. This year brought a new wave of staphylococcal infections characterized by the appearance of skin blisters filled with purulent matter. These are caused by strains of phage group II, producing toxin known as exophyliatin. Another type that is currently found is 79/95, causing skin inflamations, more frequently conjunctivitis. These staphylococcal epidemics are difficult to suppress. Even disinfection sometimes fails to produce positive results. Natural cycles of strains that still remain unexplained sometimes, however, free us from infection. Fortunately, the above-mentioned types are only resistant to benzilic penicillin, ampicillin, carbenicillin and oxyterracin, and many of the strains are susceptible to all antibiotics.

The epidemiologic situation takes a different shape when staphylococcal infections, mostly in the form of pneumonia, are a complication of a viral infection. This was a frequent occurrence in the neonate wards in the winter of 1984. The etiologic agent in that case can be any staphylococcal type present in the ward at a given moment. These can be strains with a broad spectrum of antibiotic resistance. Disinfection, however, proves effective against such types of epidemics.

Fighting endemic occurrence of P. aeruginosa in maternity wards is a less difficult task. Using vinegar to cleanse sink drains and Aldesan to disinfect toilets is sufficient to eliminate the infection focus. The epidemic threat of P. aeruginosa infection, as well as some gram-negative enteric bacilli is offered by individual obstetric patients with a chronic infection of the genitourinary tract. We have witnessed a dramatic epidemic provoked by P. aeruginosa whose source was a woman with undetected inflamation of the renal pelvis and the route of infection proliferation was provided by inadequately cleaned toilets.

The occurrence of Streptococcus pneumoniae in neonate wards gives cause for concern. The impossibility of identifying the serologic type in Poland makes it impossible to judge whether there is a correlation between the carriers of this microorganism and the incidence of meningitis in infants during the first month of life. Serious danger is presented in the neonate ward by Salmonella bacilli. Identifying an epidemic may be difficult, especially at large centers, because the signs of the disease develop only after the child is discharged from the hospital.

However, the greatest threat to the child's health does not come from obstetric wards. The main source of nosocomial infections is the pediatric ward, especially the infant department. The reason for this is inadequate

interpretation of the concept of "infectious disease" widespread in Poland, leading to erroneous organizational measures. The traditional understanding of infectious disease includes typhoid fever, typhus, diphtheria, pertussis, that is, disease entities that have almost been liquidated thanks to advances in prevention. One finds it hard to understand why typhoid is treated as an infectious disease, while infections caused by other Salmonella bacilli that have a much wider possibility for proliferation are not. The same is true of the diseases of bronchi and lungs caused by various bacteria, fungi, protozoans and viruses.

In a pediatric department, sick children or carriers of pathogenic enteric bacilli or patients with respiratory tract infections and young patients particularly susceptible to infection (those with leukemia or treated with hormones) are kept together. Epidemics in pediatric departments observed by us over many years usually originated from a sick child or (which is especially dangerous epidemiologically) from a carrier of a Salmonella species or an agent of dysenteria, such as E. coli. In view of the high vitality of these microorganisms, which can even survive on particles of dust, suppressing these epidemics is extremely difficult. In the case of Salmonella agona, quite widespread currently in Poland, additional complications come from the multiplicity of clinical pictures and the frequent occurrence of atypical strains of bacteria. The situation is especially dangerous where we have to deal with two different species simultaneously, or bacteria with different antiobiogramic strains causing dysenteria in infants. Cross-over infections lead to prolonged stays of the child in the hospital, creating a threat to its life.

It is amazing that despite wide publicity on the problem of infant morbidity and mortality, now almost nothing is said about the situation in pediatric departments where children (mostly infants) are frequently exposed to severe disease and even death. Could this be because in this case it is more difficult to put the entire blame on physicians and nurses rather than on the basic organizational setting. If we do not change our concept of infectious disease and fail to consider that they are the main cause of infant morbidity, pediatric departments will remain a place where instead of helping them we will often deteriorate children's health and in the worst cases incur loss of life caused by nosocomial infection.

A department where the possibility of nosocomial infection is rarely considered is the department of internal medicine. We tend to forget that in Poland these are largely geriatric wards and that this group of patients, as well as young children, are particularly susceptible to infection, especially of the respiratory tract. Infections caused by P. aeruginosa or Klebsiella and Proteus bacilli frequently develop in the respiratory tract; provoked by overuse of broad-spectrum antibiotics, sometimes concomitant with chemotherapy, candidiasis and geotrichosis also occur. In our studies, we have observed such occurrences frequently. In one hospital, we witnessed an epidemic of pneumonia in older female patients originally admitted with a variety of diseases and infected with a nosocomial strain of Klebsiella.

In conclusion, we can say that there are certain hospital departments where nosocomial infections are most wides-pread, although almost nothing is said or written about them. These are intensive care units and pediatric departments. In neonate wards, we are dealing less with nosocomial infections, despite the excessive publicity sometimes given them. There are other departments where much is said about hospital infection although almost nothing is known about it. These are primarily surgical departments and operating rooms.

Nosocomial infection is a fact. How can we fight it? For sure, not by regulations and reports, but only by a well-organized action based on authentic knowledge in this area and concentrated efforts.

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#### CONTROVERSY OVER VD STATISTICS

#### Columnist Comments

Bangkok BAN MUANG in Thai 25 May 84 p 4

[Free Thoughts, Cool Breezes and Sunshine column by Nui Bangkhunthien: "The Anti-Venereal Disease Association Has Done the Right Thing"]

[Text] Dr Somnuk Wibunyasek, the president of the Anti-Venereal Disease Association, has issued a warning conerning diseases transmitted during sexual intercourse, such as syphilis, true gonorrhea, false gonorrhea, herpes, fungus, warts, buboes and AIDS.

This announcement by Dr Somnuk can benefit men and women of all ages since some of these diseases can be life-threatening. Some of these diseases can cause great physical and mental suffering.

If people become afraid and take greater precautions, the rate of infection will decline and people will purchase less medicine from quack doctors.

Concerning medicines, the quack doctors know only what they have been told by the drug salesmen. Sometimes they learn about the drugs by seeing what happens to their customers, which is like making a guess. There are no standards. They ask just a few questions as a basis for judging the properties of the drugs. They then talk to their customers at great length about the properties and effects of this and that drug.

The result is that these quack doctors are earning large sums of money. Thais consume large amounts of medicine. More than 10 billion baht a year is spent on importing drugs. Besides that, these drugs also cause long-term suffering. Some people develop perforations of the stomach, some develop rheumatism and others develop bone disorders affecting the production of blood cells.

Even though the Ministry of Public health has extended the royal decree requiring drugstores to have a pharmicist on duty at all times another 2 years, these quack doctors are selling larger and larger amounts of medicine. The people whom this effects the most are the villagers,

who do not have enough money to go to a clinic and who do not want to take the time to wait in line at a hospital.

Thus, the things being done by Dr Somnuk Wibunyasek are quite fitting. Such announcements should be made on a regular basis. And besides venereal diseases, announcements should be made concerning other dideases, too. Let's have more such announcements. They are very beneficial and do no harm. Don't think that this will damage the image of Thai society, as Mr Marut Bunnak, the minister of public health, has charged.

Mr Marut said that the statistics on syphilis, true gonorrhea, false gonorrhea and AIDS presented by Dr Somnuk, which show that these venereal diseases have increased 50-fold during the past 20 years, are not correct. He said that government officials have much lower figures. That is, [government figures] show that venereal diseases(includes all diseases concerned with sexual intercourse) has increased only 34 percent. Syphilis has increased only 5 percent. [He said that] penicillin-resistant gonorrhea, which is referred to as super gonorrhea, has not increased 47-49 percent as stated by Dr Somnuk but only 39 percent. The figure on onfants born with syphilis is not 3 percent but only 1.6 percent.

As for AIDS in the homosexual community, Mr Marut said the same thing as Dr Somnuk, that is, no cases of this have been found, and there have been no official reports of cases entering [the country]. AIDS has not been found in any ASIAN country.

The difference in what these two men said is that Mr Marut said that there have not been any reports and that homosexuals are being monitored. On the other hand, Dr Somnuk said that the reason why no cases have been found is that perhaps AIDS has not yet entered the country or doctors have not yet made a careful study. The statement made by Dr Somnuk carries greater weight.

Los Angeles has the largest gay community in the world, from the high to the low echelons. Tens of thousands of Thais have gone there to work. Each month, many of these people travel back and forth between Thailand and the United States. And regardless of where they are living, Thai gays will continue to live this lifestyle; they won't change. Los Angeles is a heaven for gays. There is definitely contact there. And if Thai gays contract AIDS from American gays, AIDS will definitely spread to Thailand.

The Ministry of Public Health should quickly make an effort to provide information to gays at the service centers and distribute documents on this and give free physical examinations. This would be better than sitting back waiting for an official report that the first AIDS victim has been found.

People with sexual abnomalities are to be pitied. Nature created everything just right. Men and women compliment each other sexually. People have mouths to eat and talk and a rectum to eliminate waste. But homosexuals make abnormal use of their bodies. Their sexual preferences are abnormal and so they run a greater risk of developing buboes in the throat or of contracting gonorrhea or syphilis of the mouth.

Think about this carefully. Is this worth the thrill of just a few minutes?

Sexual pleasures are like other human activities. It's like eating, sleeping and working. The body needs all of these things. When we are filled with desire, we may do things to excess, but once satiated we are indifferent.

In short, the Anti-Venereal Disease Association should issue more such warnings. Let society's image be tarnished. The health of the people is more important. The people should know how to protect themselves. Let's not be too greedy for the money that can be made from the tourists.

#### Health Minister Objects

Bangkok BAN MUANG in Thai 22 May 84 pp 1, 2, 16

[Article: "Marut Objects, Says That Reports On Venereal Disease Will Affect Tourism"]

[Text] The Ministry of Public Health has disputed the data released by the Anti-Venereal Disease Association of Thailand, which said that the number of Thais with venereal disease is 50 times higher than 20 years ago. It said that the number has really increased only 34-fold. Treatment has been expanded, and more and more people have made use of the services. The ministry warned that releasing such reports will affect the promotion of tourism, just as happened in the case of "super gonorrhea."

In an interview yesterday, Mr Marut Bunnak, the minister of public health, and Dr Winit Atsawasena, the director-general of the Communicable Disease Control Department, told reporters that the Ministry of Public Health would like to comment on the report issued by the Anti-Venereal Disease Association of Thailand, which stated that there has been a 50-fold increase in venereal disease in the past 20 years, by saying that this statistic is not correct. According to statistics, in 1967 the number of people suffering from a venereal disease was 186 per 100,000. The most recent statistics (1983) show that the number has increased to 643 per 100,000, which is an increase of 34 percent [sic]. The ministry has increased the number of venereal disease units that provide services throughout the country and so the number of people taking advantage of the services has increased, too.

As for [the number of cases of] syphilis, which the association claims has increased 50 percent during the past 3 years, these two men said that this, too, is incorrect. The actual increase is only 5 percent. This is a rate of increase that the ministry can control. They also said that the reported 47-49 percent increase in penicillin-resistant gonorrhea was wrong. The ministry began establishing stations to be on the lookout for drug-resistant gonorrhea in all regions of the country in 1980. At present, cases of drug-resistant gonorrhea have declined to only 39 percent.

The two men denied that 3 percent of new-born infants have syphilis. They said that this is incorrect. From blood samples taken from pregnant women nationwide, syphilis was found in only 1.6 percent [of the samples], which is in line with the standard of the World Health Organization. If syphilis was present in more than 2 percent of the pregnant women, it would be considered to be a national public health problem.

The minister of public health also expressed concern over the fact that the number of gays in Thai society is increasing and that they may transmit AIDS. He said that at present, no cases have been reported in Thailand. Besides that, at a conference on this that was held in Geneva, he learned that there have not been any reported cases of AIDS in any Asian country.

However, Mr Marut said that the ministry is constantly monitoring this, and it has recommended that a study of sexual diseases among gays be made.

The minister of public health also revealed statistics for the first 6 months of 1984. He said that nationwide, approximately 407,446 people had used the services of the venereal disease centers of the Ministry of Public Health. Of these 172,653 had a venereal disease. As compared with the same period last year, this is a great drop.

As for the occupational groups that have the highest incidence of venereal disease, he said that venereal disease is most prevanent among prostitutes, followed by laborers, students, farmers, government officials, housewives, soldiers, police, merchants and businessmen.

Mr Marut said that, concerning doctors and specialists of various associations making an announcement on some disease, he supports this if this serves to inform the people and makes them more careful. However, before people issue statistics, they should first discuss things with the ministry of Public Health, which is the unit that has the data. Otherwise, this will frighten the people. And in some cases, the situation might affect tourism in the country, which has happened before.

#### Physician's Statement

Bangkok BAN MUANG in Thai 23 May 84 pp 1, 16

[Article: "Doctor Issues Warning On Syphilis, Super Gonorrhea and AIDS"]

[Text] Syphilis is spreading in Thailand. Doctor issues warning about infection of new-born infants. He said that super gonorrhea is not worrisome since it can be treated. He warned homosexuals about AIDS. Someone might bring this disease into the country.

At 1800 hours on 20 May 1984.at the Royal Hotel, Dr Somnuk Wibunyasek, the president of the Anti-Venereal Disease Association of Thailand, and his committee announced to reporters that syphilis is now 50 times more prevalent than it was 20 years ago. Statistics of the Venereal Disease Control Division show that the number of people with syphilis increased from 10,285 people in 1981 to 10,863 in 1982 and to 11,394 in 1983. These statistics are in line with statistics from the state hospitals and private clinics. For example, at the Phra Monkut Hospital, the number of cases increased from 95 in 1982 to 121 in 1983. And during the first 5 months of 1984, there were 45 cases. These statistics are very worrisome.

Dr Somnuk said that in the first stage, those with syphilis will show the following symptoms: Clumps of hair will fall out as if a cockroach had gotten into and eaten the person's hair; the eyebrow hair will fall out; and a red rash will appear all over the body, or in colloquial language, those affected will "bear flowers." Those who have such symptoms should see a doctor for a physical examination and get a blood test in order to make certain. Because a blood test will definitely determine whether or not a person has syphilis. It has been found that the number of new-born infants who have contracted syphilis from their mothers has tripled. Besides that, 3 percent who had syphilis were unaware that they had the disease.

Dr Somnuk discussed the new strain of gonorrhea that is being referred to as super gonorrhea. He said that at present in Thailand, the number of cases has declined. However, there is a serious outbreak of gonorrhea in the northeast. Comparing the statistics on gonorrhea in Thailand with those for neighboring countries such as the Philippines, Singpore, Malaysia and Hong Kong, it appears that the incidence of gonorrhea is higher in those countries. This disease is not difficult to treat. However, antibiotics must be used, and these are expensive.

Dr Naowarat Krairuk and Dr Thani Sanitwong, members of the Anti-Venereal Disease Association of Thailand, said that at present, the number of homosexuals, or gays, in Thailand is increasing. The number of people who are sexually promiscuous is 5 percent of the number of ordinary people. In Thailand there are about 500,000 homosexuals out of a total population of 50 million.

Because gays engage in abnormal sexual activities, new diseases have arisen, that is, gonorrhea of the throat and anus, buboes in the throat and warts around the mouth. Dr Thani said that the newest disease found in homosexuals is low resistance to disease, or AIDS. People who contract this disease usually die within 2 years. However, the disease has not yet been found in Thailand. It has been found in gays living in Los Angeles and New York, where there are very large gay communities. Symptoms of AIDS include physical tiredness, iritability, diarrhea, a serious loss of weight and a low fever. But this disease has not been found in Thailand. This may be because doctors here have not done serious research on AIDS. At present, gays with AIDS may have arrived from abroad and brought the disease to Thailand. Thus, gays should take precautions if they think that they might have this disease. They should quickly go to see a doctor and get an examination.

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#### DOCTOR NOTES INCIDENCE OF COMMUNICABLE DISEASES

Bangkok SIAM RAT SAPPADA WICHAN in Thai 17 Jun 84 pp 46, 47

[Interview with Dr Winit Atsawasena, the director-general of the Communicable Disease Control Department and the deputy governor of Bangkok Metropolitan; data and place not specified]

[Text] [Question] In what activities is the Communicable Disease Control Department engaged?

[Answer] The name of the department tells you what we are doing. We are concerned mostly with communicable diseases. This department is a technical department that is concerned with the various communicable diseases. The people who actually carry out the work are the officials in the provinces. We provide technical knowledge and medicines and equipment to enable the officials in the provinces to carry out their jobs. That is our main task.

Another thing is that, to enable the officials in the provinces to work efficiently, we have to have units, which are referred to as centers, that are concerned with technical matters. These are responsible for studying things and collecting data. They also hold demonstrations in the provinces so that the provinces carry out things correctly and improve things.

[Question] What are the important communicable diseases in our country?

[Answer] There have long been communicable diseases in our country. There are many such diseases, such as diarrhea, that were important in the past and that are still important today. In particular, in Thailand there are many seasonal diseases. Diarrhea is most prevalent in the dry season. Cholera, typhoid and other such diseases are all in the diarrhea group. After the dry season comes the rainy season. And with it comes rainy-season diseases, including influenza and hemorrhagic fever. In the cold season, there is meningitis and hepatitis. Colds are prevalent year-round.

Malaria once killed many people. And it is still quite prevalent. Malaria is still an important disease, particularly in the remote provinces and along the border.

[Question] Hasn't the death rate from malaria declined?

[Answer] It has declined greatly. It has dropped greatly as compared with before. But it is still an important disease. That is, it is still a problem. Many people suffer from malaria. But the death rate has dropped. Other things have taken its place. In particular, [the death rate from] accidents, cancer and heart disease has risen greatly.

[Question] Besides malaria, what other diseases are worrisome?

[Answer] One disease that has not declined is rabies. In the past, about 300 people a year died from rabies, and that is still the rate today. This is because, once a person has contracted the disease, there is no cure. If you contract the disease, you will die.

Besides this, there are several other diseases that are quite prevalent but that do not cause death. This includes the diseases caused by parasites such as intestional parasites, hookworms, into tional worms, tapeworms and flukes. About half the population suffers from hookworms. But these diseases do not cause death. Thus, frequently, people aren't aware of having such parasites unless they see them in a stool.

[Question] What dangers do these diseases pose?

[Answer] Parasites gradually destroy a person's health. For example, hookworms reduce a person's hemoglobin and iron. The person then becomes anemic. But while this makes the person tired and makes it difficult for him to work, he won't die.

Take liver flukes, for example. They live in the liver and when there are large numbers of them, they can clog the bile duct and even the gallbladder. This will not cause death but will make the person weak and dizzy. If they are present in large numbers, they can cause cirrhosis of the liver. But there must be a large number of parasites and the person must have had them a long time before he will show signs of cirrhosis of the liver or cancer, which can cause death. Usually, the person will die from some other disease.

[Question] What can be done to reduce the incidence of this disease?

[Answer] We have launched a campaign about parasites. We have organized a new unit in Khon Kaen to treat people with liver flukes. This unit was organized just this month.

We have known about this disease for a long time, but there was no medicine to treat people. Only recently has a drug been developed to treat this disease. But it is very expensive. It sells in Thailand for 80 baht per tablet. And a person has to take four tablets to be cured. That is more than 300 baht to treat just one case. But we can obtain the drug at a much lower price. We can treat a person at a cost of 20 baht per tablet, which is much cheaper.

[Question] Are there any simple measures that can be recommended to the people to help protect them from communicable diseases?

[Answer] Yes. There are many things that can be recommended. We do things seasonally. For example, at present, when there is an outbreak of some disease, we distribute documents or hold a press conference. We do things depending on the season.

As for the things that we have done, the first season is the diarrhea season. We distribute materials on that. After that we talk about the diseases that are prevalent in the rainy season. At present, there are cases of hemorrhagic fever and malaria. I think that there will be many cases of hemorrhagic fever next month. Each year, there are approximately 20,000-30,000 cases of hemorrhagic fever.

[Question] Nationwide, do many people have communicable diseases?

[Answer] Speaking of all diseases taken together, there are many cases. For example, parasitic diseases afflict as many as 25 million people. Many other people have other diseases of various types. In short, in any given year, about 30 million people have a communicable disease. But many of the diseases are seasonal. For example, in the rainy season, children come down with diphtheria and whooping cough.

[Question] How can we reduce the incidence of these diseases?

[Answer] It depends on the disease. In principle, we have to take preventive measures ahead of time. As I said, the incidence of hemorrhagic fever will increase next month. We have to begin taking preventive measures starting in January. We have sprayed chemicals in the areas where this disease is prevalent or where there have been cases before. We have done this in order to reduce the number of mosquitoes. During the rainy season, we spray for the second time in order to prevent mosquitoes from being born. This is because mosquitoes can transmit this disease from a sick child to a healthy child. The number of mosquitoes can be reduced by spraying chemicals. That is one thing.

A second thing is to inform the people about what methods to use to protect themselves from different diseases. The methods used differ depending on the disease. A third thing that we do is to provide innoculations against diseases for which there are vaccines. As for the diseases for which there are no vaccines, we can't help. For example, people can be fully protected against whooping cough and diphtheria by the use of vaccines. We emphasize giving these vaccines to children to prevent outbreaks of these diseases. Tuberculosis is another communicable disease that is a serious problem. We begin giving BCG vaccine when a child is born. You can see that children who are born at a hospital have pimples on their arms. That is from the vaccine that they were given to protect them from this disease.

Besides this, there is polio, for which there is a very effective vaccine. We give this vaccine starting at a young age.

In short, we take preventive measures ahead of time, we provide health education and we use vaccines. But the exact measures taken depend on the disease since diseases differ.

[Question] Are there cases of yaws again? What are the facts about this?

[Answer] There has not been an outbreak of yaws. We completely eliminated yaws in Thailand about 17 years ago. However, yaws has not been eliminated in Malaysia. The problem is that it is brought in from Malaysia.

Last year, we discovered several cases. We learned that these people had been to Malaysia and brought the disease into Thailand, particularly in Tak Bai District in Narathiwat Province. We sent a special team that had once been involved in eradicating yaws to survey the district. At the same time, we gave training to all the border officials. These were a new group of officials who had never seen yaws before. Younger people have never seen yaws before. We had to train them. They were taught to spot people with this disease and to report it. After that, our officials found that Malaysians had come to our country for treatment. Last month, they took pictures. We provided treatment until they were cured.

[Question] Then the problem has been solved?

[Answer] We have been doing the things that were announced. That is, this disease is easy to treat. It takes only one injection. Thus, it is quite easy to control. But we must be on the lookout for this and not let this spread. The 10 cases encountered have been treated. But the team is still there and is still surveying the area.

[Question] Concerning the public health activities carried on by Bangkok Metropolitan, what has to be done?

[Answer] Things are similar to what is done by the Ministry of Public Health. It's just that the area is smaller, that is, just Bangkok Metropolitan. As for public health, there are two departements. The Department of Medicals includes Wachira Hospital, Central Hospital, Charoenrat Hospital and Krungthon Hospital. These provide high-level medical treatment.

The Department of Health is similar to the Ministry of Public Health's Department of Health and Communicable Disease Control Department. It promotes health and the prevention of disease. There are public health service centers all over the city. There are also activities that focus on the health of mother and child and on family planning. There are drug rehabilitation activities. As for communicable diseases, there is the Communicable Disease Division, which works to control diseases. It is also engaged in eliminating [stray] dogs and vaccinating dogs.

[Question] How closely are the public health activities of Bangkok Metropolitan related to those of the Ministry of Public Health?

[Answer] We usually have a committee to coordinate things. If there is some task to do, a committee, including officials from Bangkok Metropolitan, is set up. There is no problem in coordinating things. We use personal contacts to communicate with each other. There have never been any problems.

[Question] The population of the city is very large, and people from the provinces come to use the public health services in Bangkok Metropolitan. Will there be any problems?

[Answer] This is not a problem. We are used to this. Bangkok Metropolitan is not the only one to bear this burden. The Office of State Universities shares the burden, too. People who are ill go to the Sirirat, Chulalongkorn and Rama hospitals, all of which are under the control of the Office of State Universities. Some go to the Phra Monkut Hospital, which is operated by the Ministry of Defense, or to the Ratchawithi Hospital, which is operated by the Ministry of Public Health. Everyone bears part of the burden. We all know that. About half of those who are ill come from the provinces while the other half live in Bangkok.

[Question] What are the public health problems facing the people Bangkok Metropolitan?

[Answer] Such problems usually occur in the shifting comgested areas. I used the word "shifting" but that does not occur very often. For example, when a trade center or some large project is built, the workers will build rows of small huts. They don't have toilets or clean running water. Their employers aren't interested in the living conditions of these laborers, most of whom come from the provinces.

They house their families in these small huts. They don'thave toilets. These are breeding grounds for cholera in Bangkok.

Cholera is prevalent in Bangkok year-round (laughs). In the provinces, there are seasonal outbreaks of cholera. But in Bangkok, there are cases year-round. And these are the important breeding grounds.

[Question] What recommendations has Bangkok Metropolitan made to those who are responsible?

[Answer] We are now considering whether to revise the regulations to make the contractors responsible for building sanitory toilet facilities and for providing clean water for the workers. This many be one of the conditions for obtaining permission to engage in construction activities.

[Question] How do you arrange your time to handle both of your jobs?

[Answer] I work at the Ministry of Public Health in the morning and at Bangkok Metropolitan in the afternoon, unless there is something urgent. There are no problems with this.

[Question] Is the public health budget for Bangkok Metropolitan adequate?

[Answer] The total budget for Bangkok Metropolitan is about 4-5 billion baht. The public health sector receives a fair share of this since they are concerned about the public. If we can obtain more funds, we need to improve the streets and lanes. Another task that is very important but that requires much money is flood control (laughs). This requires a lot of money. If we use money for this, the amount spent on other things will decline. People will experience problems. However, with the portion now alloted to us, there are no problems. We can carry out the tasks in accord with the plans. For large construction projects, we receive financial support from the government. The money does not all come from Bangkok Metropolitan.

[Question] Are the hospitals subordinate to Bangkok Metropolitan experiencing problems concerning doctors, nurses or equipment?

[Answer] Bagnkok Metropolitan is having problems finding enough doctors to staff the health clinics. The hospitals don't have any problem; they have enough doctors. Doctors are eager towork at a hospital. It is the health clinics that have a great need for doctors.

[Question] How will the problem be solved?

[Answer] Doctors who work at health clinics cannot become specialists. That is true in general. Sometimes, the work is concerned more with health promotion or preventive measures than it is with actual medical treatment. Younger doctors don't like this. We have to overcome the

shortage of doctors by hiring special doctors. That is, we hire non-civil service doctors to work 3 hours a day for Bangkok Metropolitan. There are about 80 of these temporary doctors. We pay them 100 baht an hour.

[Question] Do the public health service centers have enough doctors now?

[Answer] Some places have enough. Things are going according to plan. The problem is that if we build centers too quickly, we can't find doctors fast enough. Some centers have not been able to open since they don't have doctors.

[Question] What can be done to get more people in Bangkok Metropolitan to use the public health service centers instead of going to the hospitals?

[Answer] Most people go straight to a hospital. The result is that the hospitals are overcrowded, and people have to wait 90 minutes to see a doctor for just 5 minutes. And all they need is a common medicine. If people would go to the centers, they wouldn't have to wait so long. They would still get to see a doctor and would be given the same medicine. But people are used to going to a hospital. They think of the reputation of the hospital.

[Question] What is your view on the appointment versus the election of Bangkok Metropolitan administrators?

[Answer] I don't think that the main issue concerns the election or appointment of people. Rather, it is more a matter of people. Electing second-rate people is senseless. The same is true for appointing people. It's not a matter of electing or appointing people. It depends on the individual people.

[Question] Would you tell us about your work and educational background?

[Answer] I graduated from the Chulalongkorn Hospital in 1952. I was a member of Class 2 at the Chulalongkorn medical school. After graduation, I served in the navy for 4-5 years. When I left the navy, I was a lieutenant-junior. I was transferred to the Ministry of Public Health. My first job was in Nakhon Phanom Province. I was the provincial health officer. After that, I was promoted to a first-class officer and made the public health officer in Udorn Thani Province. I served as a chief with the Mother and Child Health Division and then as the director of the division. Later on, I served as the deputy undersecretary of state. Then, I was made the director-general of this department.

I have a master's degree in public health. When I was in the navy, I attended school in Michigan, where I received a master's degree in public administration. 11943

TB STATISTICS REPORTED

Bangkok NAEO NA in Thai 2 May 84 pp 1, 15

[Article: "Tuberculosis Kills 16 Thais a Day; Statistics Show That This Is the Fourth Leading Cause of Death"]

[Text] Tuberculosis kills 16 people a day. Statistics show that this is the fourth leading cause of death.

On 1 May, Dr Butsara Pongthong, the director of the Zone 1 Tuberculosis Center in Chiang Mai Province, issued a statement concerning the examination and treatment of people with tuberculosis and concerning the help and support given to six northern provinces—China Mai, Chiang Rai, Lamphun, Lampang, Phayao and Mae Hong Son—in treating this disease. This statement was issued on the 25th anniversay of the establishment of the Zone 1 Tuberculosis Control Center. On this occasion, the center held a demonstration in order to disseminate technical information on tuberculosis and respiratory diseases. The name given to this demonstration was "Tuberculosis Demonstration and Cigarettes and Health." This was held during the period 30 April to 4 May at the Zone 1 Tuberculosis Center in Chiang Mai Province.

Dr Suchat Daramat, the director of the Tuberculosis Division, Communicable Disease Control Department, talked with reporters about controlling tuberculosis in the future. He said that at present, tuberculosis is the fourth leading cause of death in the country. On the average, approximately 16 people a day die from this disease. To date, little progress has been made in solving this problem. This stems from several things, such as problems concerning population centers and the spread of knowledge and concerning providing service. The government sectors concerned are not sitting by idly. They have constantly worked at solving this problem. In particular, they have tried to raise the standard of living of the people in the rural areas, and they have provided information and services to control tuberculosis. This is one measure that will help reduce the number of people who contract tuberculosis.

11943

TB RATES SHOW NO SIGN OF DROPPING

Bangkok MATICHON in Thai 11 Jul 84 p 3

[Article: "More People From Rural Areas Than Cities Have Tuberculosis; Reason is Poverty"]

[Text] Tuberculosis is still quite prevalent. There is no sign that it is decreasing. The number of people with tuberculosis is increasing at a rate of 4,200 people a year. More people from the rural areas than from Bangkok have tuberculosis. This stems from poverty.

Dr Songkhram Sapcharoen, the president of the Tuberculosis Control Association of Thailand, said that during the past 5 years, the number of people with tuberculosis has not declined at all. Each year, about 4,200 people come down with this disease. The death rate from this disease is still approximately 7,000 people a year. The reason for this is that people with this disease do not come for regular treatment. After they come for treatment a few times and begin to improve, they stop coming. Thus, the disease becomes chronic. If people do not come for treatment regularly, they will develop chronic tuberculosis and become an important transmitter of this disease.

Dr Songkhram said that most of those suffering from tuberculosis are between the ages of 25 and 40. This is because they were infected by others who have the disease, which is transmitted by coughing and sneezing. However, most of those with this disease are poor people who have no knowledge about the disease. Also, their living conditions are very poor. At present, more people from the rural areas than from Bangkok have tuberculosis.

Dr Songkhram said that, together with the Ministry of Public Health and the Bangkok Metropolitan Department of Health, the Tuberculosis Control Association will sponsor an "Anti-Tuberculosis Week" during the week of 6-12 August in order to disseminate information concerning controling this disease.

11943

### UNIT ESTABLISHED TO TREAT LIVER FLUKE

Bangkok THAI RAT in Thai 1 Jun 84 pp 3, 2

[Article: "Five Million People Suffer From Liver Fluke; Most Cases Are In the Northeast"]

[Text] Mr Thoetphong Chaiyanan, the deputy minister of public health, and Dr Winit Atsawasena announced that a survey had found that 5 million Thais suffer from liver fluke. In particular, 34 percent of the cases were in the northeast. Six percent of the cases were in the central region and 5 percent were in the north, most of whom were people who had moved to these regions from the northeast. Very few cases were found in the south. The Communicable Disease Control Department has established a temporary liver fluke treatment unit at the tuberculosis center in Khon Kaen Province. This unit will begin operations on 4 June. In providing services, it will check people's stools for liver fluke eggs, checking approximatley 300 stools a day. People have been asked to bring their stools for examination by placing a good-sized sample in a clean cup or plastic sack. If liver flukes are found, medicine will be sold to the person at the wholesale cost of 20 baht per tablet. Services will be provided daily except for government holidays.

Concerning treating this disease, in the past there was no medicine to cure this disease. But now, 95 percnet of the cases can be cured. Many people from the northeast come to Bangkok Metropolitan for treatment. This has caused problems and been very expensive for them. Once this liver fluke unit begins providing services, it will save the people at least 500-600 baht in expenses. In the future, such units will also be established in other provinces where this disease is prevalent.

11943

DAC LAC MALARIA CONTROL—Every year since liberation, more than 80 percent of the population in Dac Lac Province have been inoculated against malaria and all houses have been sprayed with DDT to eliminate mosquitos. As a result, the number of people contracting malaria has dropped from 139,000 in 1978 to 11,000 in 1980. Meanwhile, the number of people suffering from bubonic plague in the province has also decreased by nearly two thirds. [Summary] [Hanoi Domestic Service in Vietnamese 1430 GMT 12 Aug 84]

CATTLE VACCINATED AGAINST ANTHRAX—Approximately 8,390 head of cattle, of which only 1,654 belong to the state sector, have already been vaccinated against external anthrax in the Municipality of Porto Amboim by agencies of the Municipal Agricultural Delegation. A source within the management contacted by the ANGOP [Angolan Press Agency] stated that the implementation of this task, which was performed by only four technicians and an assistant, was hampered by difficulties, specifically in connection with the transport of the cattle belonging to the private sector to the main concentration points. The campaign, which was initiated last June, is due to close at the end of this month and if the transport problem is not solved, the vaccines will deteriorate, since their shelf-life expires this August. [Text] [Luanda JORNAL DE ANGOLA in Portuguese 29 Jul 84 p 3] 8089

RABIES IN BAFATA REGION--At present there is an outbreak of rabies in the Bafata Region, which, according to veterinary technician Comrade Anssumane Djassi, has caused the death of some people as a result of bites from dogs carrying the disease. Every year, it is customary to undertake a vaccination campaign in all sections of the region. This year it was not possible, owing to lack of rabies vaccine. This epidemic, said Comrade Djassi, began two weeks ago according to the Region's Public Health. [Text] [Bissau NO PINTCHA in Portuguese 7 Aug 84 p 2] 8870

HEMATIC CARBUNCLE IN CATTLE—The death of cattle reported in the Cacheu region since last week has recently been countered by a vaccination team headed by Comrade Rui Barreto, Sanitation Director and animal traction administrator of zone 1. It must also be stressed that this disease, known as hematic carbuncle, has already struck a number of cattle. In Lompate, Cabique and Biacha plantations like preventive vaccinations against this kind of disease are to be found. [Excerpt] [Bissau NO PINTCHA in Portuguese 7 Aug 84 p 2] 8870

# VETERINARY EXPERTS ATTEND RABIES SYMPOSIUM

Jakarta ANTARA NEWS BULLETIN in English 29 Aug 84

[Text] Denpasar, Aug 29 (ANTARA)—The number of persons suffering from rabies totalling 7,635 in the four-year period of 1980-83, or averaging 2,000 cases a year, in some regions in Indonesia, has so much worried the public.

Death of animals caused by rabies are also high in number. For the 1977-1983 period, it recorded a total of approximately 850 animals a year dying of rabies.

Chairman of the Organizing Committee of the rabies symposium, Vet Kosala Anom Mandala told ANTARA Tuesday that the case of rabies deserved an urgent attention from all parties considering that six provinces in the country, notably West Nusa Tenggara, East Nusa Tenggara, East Timor, Maluku, Bali and Irian Jaya, were regarded free from rabies.

Some 200 participants comprising veterinary experts will discuss matters on rabies, such as precautionary and eradicating steps to fight rabies, in a two-day symposium starting September 10 in Bali, he said.

The national symposium on rabies, the first of its kind, is scheduled to be officially opened by Junior Minister for Boosting Production of Animal Husbandry and Fishery, Prof Dr JH Hutasoit.

## RABID DOGS DETECTED IN MAPUTO

Maputo NOTICIAS in Portuguese 1 Sep 84 p 2

[Communique issued by Executive Council of the city of Maputo; date not given]

[Text] Some cases of dog rabies were identified a few days ago in the nation's capital. In regard to this matter, the Executive Council of this city issued the following communique:

During the last 3 weeks some cases of dog rabies were detected in the city of Maputo. From that we can conclude:

- -- That some dogs were not vaccinated at the time of the conveniently-planned campaign at the neighborhood level in the nation's capital.
- --That there is a large number of stray dogs in the city, or dogs that act as if they were, although they have owners, a fact that could endanger the health of the city's population.

During the period of time referred to above, about 30 persons bit by or having had contact with rabid dogs are now being vaccinated, as a form of preventing appearance of the disease.

It is clarified that rabies is a disease that, once detected, leads invariably to death. Its seriousness thus justifies that special measures be taken that should be followed by the population.

# Measures to Be Taken

- --Immediately reinitiate capture of stray dogs and cats or those that are found roaming freely in public places.
- --Owners of dogs and cats must keep them properly sheltered in their homes or backyards, as a way of preventing citizens' being bitten by stray dogs that may be carriers of the disease.
- --Unvaccinated animals must be taken immediately by their owners to the Veterinarian Hospital at 1695 Emilia Dausse Av. (across from the Red Star Secondary School), in order to be vaccinated. Vaccination is mandatory.

- --In case of appearance of sick animals or suspected of having rabies, the Veterinary Service must be advised immediately, and it will indicate what steps to take.
- --Persons who have been bitten by dogs or cats should go immediately to the Center for Prophylaxis and Medical Examinations of the Health Directorate of the City of Maputo, where each case will be analyzed and the need to be vaccinated will be decided.
- \*-Noncompliance with these rulings leads to application of measures contained in the Health Regulations in force.

8834

ST LUCIA MANGOES BAN-Bridgetown, Barbados-St Lucia and Barbados have agreed to work toward an early resumption of trade in mangoes between the two countries, the Ministry of Agriculture here said. Barbados recently banned the importation of mangoes from St Lucia after the mango seed weevil was discovered there. The Ministry said this was the first time the weevil was known to be affecting mangoes in the region and reports suggested it was also present in Martinique. St Lucia's Agriculture Minister Ira D'Auvergne and Chief Agriculture Officer David Demaque met Agriculture officials here Monday to discuss the possibilities of reestablishing the mango trade. A statement from the ministry said: "arising from the discussions, it was proposed that a local survey be carried out to determine whether or not the weevil is already affecting mangoes in Barbados. That in St Lucia, an internal quarantine system be initiated to limit the weevil's movement to non-affected areas, that the assistance of the Caribbean Plant Protection Commission be sought in formulating an effective strategy for co-operation and protection between both countries and within the region." [Text] [Castries THE VOICE in English 22 Aug 84 p 5]

CSO: 5440/027

# CROPS THREATENED BY WORMS

Mexico City EXCELSIOR in Spanish 7 Aug 84 p 36-A

[Text] Torreon, Coahuila, 6 Aug—Three different types of worms are threatening cotton production in this region. The blight has already affected 6 percent of the cultivated fields and has spread to Guanajuato and Durango, according to Luis Solares Torres, chief of Plant Health of the local office of SARH [Secretariat of Agriculture and Water Resources].

At the same time, in Guanajuato, another worm blight is affecting cron and sorghum crops. In the municipality of Irapuato, the blight has affected 50 percent of these crops, according to the president of the Farmers' Association [Associacion de Policultores] of this region, Javier Alvarado Arreguin, in a statement to correspondent Haydee Ortiz.

The Plant Health office of the SARH has also detected the presence of the cotton blight in the Sonora cotton fields, however, Carlos Silva, a leader of the regional peasant committee of San Luis Rio Colorado, gave assurances that "it does not constitute a serious or alarming matter, because we have always had this type of problem here."

Nonetheless, the official in charge of Plant Health in Sonora, Armando Mora Vega, characterized the problem as serious, but the peasant leader gave assurances that this version is completely "alarmist," according to a report by correspondent Francisco Santa Cruz.

In Guanajuato, the blight has spread to the Pueblo Nuevo, Aldama, Huanimaro, Cueramaro, Salamanca and Irapuato regions. According to the farmers leader, the plague of borer [cogollero] and army worms has even invaded the urban areas of Irapuato.

In Coahuila, the plague has seriously affected the cotton crops in three municipalities. There, the SARH stated, the tolerance limit surpassed 7.1 percent of crop damage per cultivated hectare. So far, the presence of worms of the species known as [ballotero], beaked, and pink, have been detected. Heavy applications of pesticides have been effected as an immediate measure, Solares Torres said.

12674

CHIAPAS: VIOLATION OF QUARANTINE--Tapachula, Chiapas, 29 Jul--Immoral and corrupt employees of Plant Health, a local office of SARH [Secretariat of Agriculture and Water Resources], in connivance with Guatemalan growers, are violating the current quarantine and are allowing the entry into the country of agricultural products such as, tomatoes, peaches, chayotes and pumpkins, according to charges by officers of the Union of Fruit, Egg and Vegetable Importers. The officers of this group, Esteban Tapia Hernandez, Luis de la Torriente Leal and Benito Hernandez Aguilar, said that the illicit traffic in these perishable products from Guatemala to Mexico constitutes unfair competition, but that the most important and dangerous factor is that the corrupt actions of the Plant Health employees is detrimental to the national economy. They said that the employees are permitting the introduction of pests that are being fought every year in Mexico and the United States at the cost of many millions of dollars, as in the case of the Mediterranean fruit fly. They said that the contraband is carried out on the Ciudad Hidalgo-Tapachula railroad. The union leaders demanded the intervention of SARH officials inasmuch as the regional commissioners are ignoring the charges. [Text] [Mexico City EXCELSIOR In Spanish 30 Jul 84 p 18-D] 12674

INSECT ATTACK ON COTTON—SANGHAR, Sept 9: Insect attack of sucking complex as well as boll worm has been brought under control and the percentage of infection was not going above economical injury level that a boll worm attack was not more than 5% and sucking complex was not more than 1 to 2 per lead. Mohammad Hayat Deputy Director, Agriculture, told 'Dawn' that the districts of Sanghar has the largest area of 351,000 acres under cotton in Sind. Major portion was sprayed by the cotton growers by themselves and it is estimated that more than 65% of the total area has been sprayed. At some places, this operation is repeated 3 to 4 times. In addition, 12,500 acres were being sprayed by NLC with 600 sprayers in hand. This operation will be repeated after 15 days again. So far, about 8,000 acres have been sprayed as first operation with Eklax Gusathian and Lorsban insecticides. Results of spraying [Karachi DAWN in English 10 Sep 84 Business Supplement p I]

SPRAYING OF COTTON CROP--NAWABSHAH, Sept 9: National Logistic Cell has started spraying cotton crops in eight dehs of Taluka Nawabshah. This campaign is being conducted in two phases. In the first phase hostathion is being sprayed while decis will be sprayed during the second phase. Cotton in this district has been sown on an area of three lac acres and it is expected that a target of 3 lac bales of cotton will be achieved as the crop condition is satisfactory. The agriculture experts, however, have determined a 5 to 15 per cent attack of boll worm and jasids at different places. [Text] [Karachi DAWN in English 10 Sep 84 Business Supplement p I]

BAC THAI CROP PROTECTION—Owing to effective prevention and control, Bac Thai Province has saved 7,500 hectares of early 10th-month rice from destruction by stem borers and leaf rollers duringthe first 10 days of August. Almost 20,000 hectares of the province's 10th-month rice crop were attacked by harmful insects as soon as they were transplanted, 10,000 of which were heavily damaged. The province has set up five additional district crop protection stations and consolidated 200 crop protection teams of the cooperatives. The province has also supplied the cooperatives with 100 metric tons of insecticides and 30 metric tons of oil as fuel for insect-trapping lanterns. [Summary] [BK131634 Hanoi Domestic Service in Vietnamese 2300 GMT 11 Aug 84]

PESTS AFFECT RICE CROPS--Owing to rainfall over the past week, rice plants in many areas are developing well. However, the greatest trouble now is the spreading of rice pests caused by stem borers since early August. Rice leaf beetles have appeared in Hai Hung, Ha Nam Ninh, and Thai Binh Provinces. An average of 200 to 500 rice leaf beetles per square meter has been estimated in the affected rice areas. As much as 8,000 hectares of rice in Kim Son District, Ha Nam Ninh Province have been ravaged by these insects. The district has caught as much as 5 tons of insects in 5 days after launching an insect-eradication campaign. [OW221341 Hanoi Domestic Service in Vietnamese 1100 GMT 20 Aug 84]

CSO: 5400/4454

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